



# LightPulse® LPe12004

## 8Gb Fibre Channel PCIe 2.0 Host Bus Adapter

Unparalleled Manageability, Reliability, Performance and Ease of Deployment



Streamlined installation and management, unrivaled scalability, and industry-leading virtualization support make the quad-port Emulex LightPulse LPe12004 Fibre Channel host bus adapters (HBA) ideal solutions for enterprise, mixed-OS and virtual server environments.

### Proven Design, Architecture and Interface

Emulex LightPulse HBAs' highly integrated processor design minimized onboard components to improve host performance and efficiency. Advanced error-checking features ensure the integrity of block data as it traverses the SAN. Emulex's firmware-based architecture enables feature and performance upgrades without costly hardware changes. The unique Service Level Interface (SLI™) allows use of a common driver across all models of Emulex HBAs on a given OS platform. Installation and management facilities are designed to minimize server reboots and further simplify deployment.

### Powerful Management Software for Maximum Data Center Efficiency

The Emulex OneCommand® Manager enterprise class management application features a multiprotocol, cross-platform architecture that provides centralized management of all adapters provided by Emulex. This enables IT administrators to manage network connectivity with one tool for maximum efficiency. OneCommand Manager also features:

- OneCommand® Manager plug-in for VMware vCenter Server—enables comprehensive control of Fibre Channel HBAs and network (FCoE, iSCSI and TCP/IP NIC) connectivity solutions provided by Emulex from VMware's vCenter Server management console. Emulex OneCommand Manager plug-in for VMware vCenter Server supports both the new VMware vSphere 5.1 Web Client and the VMware vCenter Server desktop client with an identical feature set regardless of the client.

### Key Benefits

- Provides superior performance for the enterprise
- Integrates seamlessly into existing SANs
- Delivers quad-port connectivity for 8GFC target applications
- Provides Fibre Channel connectivity for slot constrained server environments
- Supports IT server consolidation and energy conservation initiatives
- Allows application of SAN best practices, tools and processes with virtual server deployments
- Assures data availability and data integrity
- Improves IT staff productivity through simplified deployment and management

### Key Features

- Support for Message Signaled Interrupts eXtended (MSI-X), improves host utilization and enhances application performance
- Support for 8GFC, 4GFC and 2GFC devices
- Comprehensive virtualization capabilities with support for N\_Port ID Virtualization (NPIV) and Virtual Fabric
- Host to Fabric FC-SP authentication
- Long wave optical transceiver model available—allows the board to transmit signal over long distances
- Secure management with role-based administration integrated with Light Directory Access Protocol (LDAP) and Active Directory (AD) services
- BlockGuard® ready—ensures end-to-end data integrity
- Common driver model allows a single driver to support all Emulex HBAs on a given OS
- Easy deployment of new firmware with minimal server reboots
- Efficient centralized administration of Emulex HBAs via powerful management tools
- PCIe 2.0 bus compliant, with PCIe 1.0 backward compatibility supported



OneCommand®

LightPulse®

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## 8Gb Fibre Channel PCIe 2.0 Host Bus Adapter

### Standards

- ANSI Fibre Channel: FC-PI-4, FC-FS-2, FC-FS-2/AM1, FC-LS, FC-AL-2, FC-GS-6, FC-FLA, FC-PLDA, FC-TAPE, FC-DA, FCP through FCP-4, SBC-3, FC-SP, FC-HBA and SMI-S v1.1
- PCI Express base spec 2.0
- PCI Express card electromechanical spec 2.0
- Fibre Channel class 2 and 3
- PHP hot plug-hot swap

### Architecture

- Quad-port
- 8GFC, 4GFC or 2GFC Link speeds automatically detected
- Integrated data buffer and code space memory

### Comprehensive OS Support

- Windows, Linux, NetWare, Solaris (except DR), VMware
- Additional support is available from OEMs and partners

### Hardware Environments

- PowerPC,® SPARC,® x86, x64 and Intel® Itanium® 64-bit processor family

### Optical

- Data rates: 2.125, 4.25 and 8.5GFC (auto-detected)
- Optics: Short wave lasers with LC type connector
- Cable: Operating at 8Gb/s
  - 50/125µm (500MHz\*km BW)-up to 50m
  - 50/125µm (2000MHz\*km BW)-up to 150m

### Physical Dimensions

- PCI full-height, half-length form factor card
- 111.15mm x 167.64mm (4.376" x 6.600")
- Standard bracket

### Power & Environmental Requirements

- Volts: +3.3, +12
- Operating temperature: 0° to 55° C (32° to 131° F)
- Storage temperature: -40° to 70° C (-40° to 158° F)
- Relative humidity: 5% to 95% non-condensing, 23° C wet bulb

### Agency Approvals

- North America:
- FCC Class A
  - UL/CSA Recognized
- Europe:
- CE Mark
  - EU RoHS compliant
  - TUV Bauart Certified
- Japan:
- VCCI Class A
- Taiwan:
- BSMI Class A
- Korea:
- MSIP (formally KCC/MIC) Class A
- China:
- China RoHS Compliant

(Please refer to the product page on [www.emulex.com](http://www.emulex.com) for further details)

### Ordering Information

- LPe12004-M8
  - Quad-port, multi-mode optic interface

### Additional Features

#### Performance features

- Doubling the maximum Fibre Channel link rate from 4GFC to 8GFC and enhanced virtualization capabilities help support IT "Green" initiatives
- Frame-level Multiplexing and out-of-order frame reassembly increases link efficiency and maximizes HBA performance.

#### Data protection features

- End-to-end data protection with hardware parity, CRC, ECC and other advanced error checking and correcting algorithms ensure data is safe from corruption.

#### Deployment and management features

- Universal Boot capability allows the appropriate boot environment to be automatically selected for any given hardware.
- Boot from SAN capability reduces system management costs and increases uptime.
- Detailed real-time event logging and tracing enables quick diagnosis of SAN problems.
- Beaconsing feature flashes the HBA LEDs, simplifying their identification within server racks.
- Environmental monitoring feature helps to optimize SAN availability.

### Management Features

- The Emulex OneCommand Manager application enables centralized discovery, monitoring, reporting, and administration of Emulex HBAs and UCNAs on local and remote hosts. Powerful automation capabilities facilitate remote driver parameter, firmware and boot code upgrades. Advanced diagnostic features such as adapter port beaconing and adapter statistics help to optimize management and network performance while the environmental monitoring feature helps to maintain optimum host to fabric connections. In addition to the GUI interface, management functions can also be performed via a scriptable Command Line Interface (CLI) as well as a web browser. With in-band and out-of-band management capabilities, Emulex provides data center administrators with the greatest level of management flexibility.
- OneCommand Manager supports role-based management to facilitate administration of adapters throughout the data center without compromising security. Management privileges can be assigned based on LDAP and AD group memberships.
- Emulex's management instrumentation complies to Open Management Standards, such as SMI-S and common HBA API support, which enables seamless upward integration into enterprise storage and server management solutions.



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